

THE INVENTION CLAIMED IS:

1. An automatic door opener comprising:
a platform adapted to support a substrate carrier;
5 a door opening mechanism adapted to open a door of the substrate carrier while the substrate carrier is supported by the platform; and
a tunnel adapted to:
extend from an opening in a clean room
10 wall toward the platform and at least partially surround the platform; and
direct a flow of air from the clean room wall toward the platform and out of the tunnel.
- 15 2. The automatic door opener of claim 1 wherein the substrate carrier comprises a front opening substrate carrier.
- 20 3. The automatic door opener of claim 1 wherein the substrate carrier comprises a single substrate carrier.
- 25 4. The automatic door opener of claim 1 wherein the substrate carrier comprises a multi-substrate carrier.
- 25 5. The automatic door opener of claim 1 wherein the substrate carrier comprises a front opening unified pod.
- 30 6. The automatic door opener of claim 1 wherein the door opening mechanism is located within the tunnel.
- 30 7. The automatic door opener of claim 1 wherein the door opening mechanism is adapted to employ a docking movement to open the door of the substrate carrier.
- 35 8. The automatic door opener of claim 1 wherein

the tunnel is adapted to direct a flow of air from the clean room wall toward the platform by allowing a flow of air from the opening of the clean room wall to the platform in response to a pressure differential maintained between the opening of the clean room wall and the platform.

9. The automatic door opener of claim 1 wherein the flow of air comprises a laminar air flow that at least partially surrounds the substrate carrier.

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10. The automatic door opener of claim 1 wherein the clean room wall comprises a wall of a factory interface of a processing tool.

11. The automatic door opener of claim 1 wherein the door opening mechanism includes a port door that is adapted to unlock, receive and support the door of the substrate carrier and then lower so as to allow a substrate to be removed from the substrate carrier.

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12. The automatic door opener of claim 11 wherein the port door is adapted to move away from the substrate carrier and then lower.

13. The automatic door opener of claim 11 wherein the platform is adapted to:

move the substrate carrier away from the port door so as to allow the port door to lower; and

then move the substrate carrier back toward the opening in the clean room wall.

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14. A method of loading a substrate into a processing tool comprising:

loading a substrate carrier onto a platform positioned adjacent a clean room wall that separates the platform from the processing tool;

at least partially surrounding the substrate carrier with a tunnel that extends from an opening in the clean room wall toward the platform;

opening a door of the substrate carrier while the substrate carrier is supported by the platform; and

directing a flow of air from the clean room wall toward the platform and out of the tunnel.

15. The method of claim 14 wherein the substrate carrier comprises a front opening substrate carrier.

16. The method of claim 14 wherein the substrate carrier comprises a single substrate carrier.

17. The method of claim 14 wherein the substrate carrier comprises a multi-substrate carrier.

18. The method of claim 14 wherein the substrate carrier comprises a front opening unified pod.

19. The method of claim 14 wherein opening the door of the substrate carrier comprising employing a door opening mechanism located within the tunnel to open the door of the substrate carrier.

20. The method of claim 14 wherein opening the door of the substrate carrier comprising employing a door opening mechanism that is adapted to employ a docking movement to open the door of the substrate carrier.

21. The method of claim 14 wherein directing a flow of air from the clean room wall toward the platform

comprises allowing a flow of air from the opening of the clean room wall to the platform in response to a pressure differential maintained between the opening of the clean room wall and the platform.

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22. The method of claim 21 further comprising generating the pressure differential between the opening of the clean room wall and the platform.

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23. The method of claim 22 wherein generating the pressure differential between the opening of the clean room wall and the platform comprises flowing filtered air into a factory interface associated with the processing tool.

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24. The method of claim 22 wherein generating the pressure differential between the opening of the clean room wall and the platform comprises maintaining a pressure differential of between about 0.0005 to 0.2 inches of water between the opening of the clean room wall and the platform.

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25. The method of claim 14 wherein the clean room wall comprises a wall of a factory interface of the processing tool.

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26. The method of claim 14 wherein directing a flow of air from the clean room wall toward the platform and out of the tunnel comprises directing a laminar air flow from the clean room wall toward the platform and out of the tunnel.